NOTES.

DR. S. F. HARMER, F.R.S., has been appointed, subject to confirmation, keeper in zoology at the British Museum (Natural History), South Kensington. Dr. Harmer has been superintendent of the Museum of Zoology at Cambridge since January 1, 1892. He is a fellow of University College, London, and lecturer in natural sciences at King's College, Cambridge. Dr. Harmer is joint editor of the "Cambridge Natural History," and he has written numerous scientific papers dealing mainly with the Polyzoa. He has also done much to elucidate the affinities of the obscure organism Cephalodiscus with some of the more primitive members of the great group Chordata, which includes the vertebrates. He was president of the zoological section of the British Association at the recent meeting in Dublin, and is a past-president of the Museums Association.

IT is announced by the *Daily Chronicle* that the Nobel prize for medicine will this year be divided between Prof. Metchnikoff, assistant director of the Pasteur Institute of Paris, and Dr. P. Ehrlich, director of the Royal Institute of Experimental Therapeutics at Frankfurt-on-Main.

MR. N. W. THOMAS has been selected by the Secretary of State for the Colonies to conduct an investigation into the laws and customs of the native tribes of southern Nigeria. The tribes to be studied are, in the first instance, those of the old kingdom of Benin, but it is probable that the inquiry will be continued and include the natives of the other West African colonies in addition. Mr. Thomas is leaving to take up his duties in a few weeks.

THE jubilee of the Geologists' Association will be celebrated on Friday, November 27, by a conversazione at University College, Gower Street, W.C. A number of interesting objects will be exhibited, and short lectures will be given by Prof. E. J. Garwood, on "In the Himalayas around Kangchenjunga," and by Mr. G. W. Young, on "Reminiscences of Association Excursions."

BY the will of the late Prof. H. C. Vogel, who died in August, 1907, the Berlin Academy of Sciences has received, we learn from the *Revue scientifique,* a legacy of 17,000 marks for the purpose of awarding medals intended to encourage research work in astrophysics and spectrum analysis. From the same source we note that a prize of 2500 marks has been awarded to Prof. Abegg, of Breslau, for his physicochemical studies of gallium.

THE first general meeting of the Concrete Institute was held on November 19 at the Royal United Service Institution, Westminster. Sir Henry Tanner, I.S.O., principal architect to H.M. Office of Works, a vice-president of the institute, occupied the chair. The institute started with 100 founders, and now has a list of more than 300 members. The Earl of Plymouth is the first president of the institute, the objects of which may be summarised as follows:—to advance the knowledge of concrete and reinforced concrete, and direct attention to the uses to which these materials can be best applied; to afford the means of communication between persons engaged in the design, supervision, and execution of works in which concrete and reinforced concrete are employed (excluding all questions connected with wages and trade regulation); to arrange periodical meetings for the purpose of discussing practical and scientific subjects bearing upon the application of concrete and reinforced concrete, and to conduct such investigations and to issue such publications as may be deemed desirable. In a preliminary statement, Mr. Edwin O. Sachs, chairman of the executive, said it is hoped that British public authorities concerned may find it advisable to contribute in some way towards the expense of the research work necessary in connection with concrete and reinforced concrete. In America the United States Government has already contributed 25,000*l.* for research work in this direction, while the German authorities have contributed 20,000*l.* towards research in reinforced concrete alone. Mr. C. F. Marsh, assistant engineer to the Metropolitan Water Board, then read a paper on the composition and uses of plain and reinforced concrete.

THE habits and bodily pose of the sauropod dinosaurs, and more especially Diplodocus, form the subject of a very interesting paper by Dr. O. P. Hay in the October issue of the *American Naturalist.* In place of being mammal-like in carriage, the author is of opinion that these reptiles were built more like crocodiles, and, instead of walking, were consequently able only to crawl on land, and that perhaps slowly and laboriously. On the other hand, they were eminently amphibious, and capable of swimming easily. The great weight—some twenty tons—of these creatures would, according to Dr. Hay, inevitably lead to their being mired if they walked on land in quadruped-fashion, while the idea of their raising themselves on the hind-limbs is regarded as preposterous. Their food doubtless consisted of floating, and perhaps also submerged, water-plants, the latter of which could be readily reached by means of the long neck. In the case of Diplodocus, with its weak teeth, the chief nutriment may have been formed by masses of floating alga of the Chara type.

DR. HAY communicates a second paper on dinosaurs to the Proceedings of the U.S. National Museum, in which he deals with the carnivorous group, discussing the nomenclature of certain forms, and directing special attention to the skull-structure of *Ceratosaurus nasicornis.*

WE have to acknowledge the receipt of a large budget of papers published in the Proceedings of the U.S. National Museum. In one of these (No. 1635) Mr. J. O. Snyder describes a number of new fishes from Japan and the Riu-kiu (Liu-kiu) Islands, while in a second (No. 1643) he discusses two rare Californian fishes. American moths form the subject of papers by Mr. A. Busck (No. 1644) and Mr. W. D. Kearfott (No. 1649), the mosquitoes of tropical America are discussed in No. 1632 by Messrs. Dyar and Knab, and new neotropical Acridididæ are described by Dr. J. A. G. Rehn in No. 1650. Crinoids form the subject of two contributions (Nos. 1634 and 1636) by Mr. A. H. Clark, in the first of which the axial canals of recent pentacrinids are discussed, while the arm-joints of that group and the comatulids are considered in the second.

THE greater portion of *Naturen* for November is taken up with a memoir of the great pioneer geologist Leopold von Buch, with special reference to the fact that the present year is the centenary of the completion of his visit to Scandinavia. Von Buch, who was born in 1774, spent two years in a geological exploration of Norway, bringing his tour to a close on November 12, 1808, on which day he left the country.

HORSE-BREEDING in America forms the subject of an article by Mr. J. G. Speed in the November number of the *Century Illustrated Magazine.* Special attention is directed to the Denmark and Kentucky breeds, the latter being regarded as unusually well fitted for campaigning purposes, for which it is now generally admitted that the English thoroughbred is unsuited. The paper is illustrated by portraits of a number of notable horses.

INHERITANCE in biology forms the subject of an address delivered by Mr. Angel Gallardo before the Instituto de Enseñanza General at Buenos Aires. Of this address, which has been published in the *Biblioteca* of that institution, we are indebted to the author for a copy. In the same cover is bound up a reprint of a paper by Mr. Gabriel, published in the *Comptes rendus* of the Paris Academy of Sciences under the title "Sur l'Épruve statistique de la Loi de Mendel."

THE Transvaal Museum, according to the report for 1906–7, is making strenuous efforts to obtain a representative collection of the animals of South Africa, both for exhibition and for study purposes. Already the exhibited series of antelopes is complete, with the exception of three species, although a few old specimens require replacing by better examples. The aim of the authorities goes, however, much beyond this, and efforts are to be made, with the aid of trained collectors, to institute a biological survey of the country, in the hope that new species and races may in the future be described locally instead of in Europe or America.

To the *Afhandlinger* of the Bergens Museum Aarbog for 1908 Mr. J. A. Grieg contributes the first part of an article on the Pleistocene fauna of Norway, dealing in this instance with the red deer, of which a number of antlers are figured. The author regards these Pleistocene red deer as practically identical with the existing Norwegian race, and this in turn as inseparable from the Scottish animal. In regard to the latter point, he writes as follows:—"The existing Norwegian red deer accords in most respects with the Scottish deer. As already pointed out, it cannot have travelled from Scotland to Norway by way of a land-bridge; and the resemblance between the two forms must accordingly be attributed to the similar physical conditions obtaining in their respective habitats, both of which possess a mild and moist climate on the coast."

THE results of a study of the weights of developing eggs, by Messrs. Ritter and Bailey, are recorded in vol. vi., No. 1, of the Zoological Publications of the University of California. The eggs of the Californian mud-fish (*Fundulus parvipinnis*) formed the subject of experiment, and it was found that during development they lost perceptibly in weight. This diminution appears to "have been due to carbon dioxide and organic salts representing the albuminoid loss, which had passed out through the egg-membrane and been washed away in the sea-water." It is suggested that weighings of large holoblastic eggs of amphibians might be advantageously compared with the weights of meroblastic eggs of allied species.

FROM a long series of papers in the Proceedings of the Indiana Academy of Science for 1907 we select for brief notice one by Mr. D. M. Mottier on the history and control of sex. After a long survey of the various views which have been suggested to explain the development of sex in the germs of animals and plants, the author rejects as untenable the theories that either nutrition or environment is the inducing cause of the differentiation. On the other hand, he appears to regard with more favour the hypothesis as to sex being pre-determined in the germ-cells, and consequently a matter of heredity. According to this view, certain parts of the hereditary substance of chromatin contain only male and others only female characters or determinants. If the determination of sex be a problem of heredity, and hereditary phenomena are connected with a physical basis, a theory of the foregoing nature is regarded by the author as worthy of fuller investigation.

To the seventh number of the *Bulletin International de l'Académie des Sciences de Cracovie* for 1908, Mr. M. Siedlecki communicates a preliminary note on the structure, habits, and development of the so-called flying-frog (*Rhacophorus reinwardti*) of Java. The sexes differ, it appears, in size, the female being one-third larger and twice as broad as her partner, while she is further distinguished by the smaller development of her voice-organs and somewhat less brilliant colouring. By means of sucking-organs, which are different in structure from those of Hyla, these frogs are able to ascend and cling to vertical tree-stems. The author confirms Wallace's statement as to the webbing of the toes serving the purpose of a parachute during a fall from a height. On such occasions the toes are extended and the limbs held close to the sides of the body, so as to increase its superficies, with the result that what would otherwise be a vertical descent is converted into a spiral course.

THE vitality of trawl-caught fishes, with special reference to their potential survival in aquariums connected with biological investigations, forms the subject of a paper by Dr. A. T. Masterman, issued as No. 42 of *Publications de Circonstance* by the Permanent International Committee for the Exploration of the Ocean. A second publication by the same body is the second volume (dealing with the year 1905) of a statistical bulletin of the marine fisheries of the various countries of northern Europe. The values of the commoner kinds of fish taken in each country during the year in question are set out in one set of detailed tables, printed in English and German on alternate pages, and the quantities in a second set. The largest item in the British Isles is 1,343,080*l*., yielded by the Scots herring-fishery, next to which comes the English catch of haddock, with a value of 1,329,537*l*.

A STUDY of cell structure in Porphyra, contributed by Miss S. M. Wislouch to the *Bulletin du Jardin Impérial Botanique de St. Pétersbourg* (vol. viii., part iv.), deals with the structure of the nucleus and the chromatophore with its prominent embedded pyrenoid. An account is also furnished by Mr. G. A. Nadson of bacteria identified in samples of mud taken from the bottom of Lake Ladoga.

THE connection between forests and rainfall is argued from a somewhat original standpoint in an article contributed to the *Indian Forester* (October). Transpiration of water from a forest is computed to be six hundred times the amount evaporated from a water surface of the same area. Calculating the proportion of land to water on the surface of the globe as 1 to 3, and reckoning that forest occupies one-quarter of the land, the moisture given off by forests is many times greater than that evaporated by the whole water surface. Hence it is reasoned that diminution of forest areas must lead to diminished rainfall, or, regarded conversely, the moisture which may be condensed to rain is primarily dependent upon the extent of forests.

THE chief feature in the lime fruit industry of Dominica, as stated in the report for 1907–8 on the botanic station and agricultural school, has been the large increase in the export of citrate of lime. Vigorous efforts are being made to improve cocoa cultivation on the island by demonstrating the use of manures on experimental plots and the value of grafted plants. The data recorded for the experimental trials of manures provide facts regarding the general action of certain ingredients besides proving the positive value of manures for cocoa. A comparison of rubber yielded by Castilloa and Hevea trees points to the superiority of the latter both as to quality and facility of preparation, but the Hevea demands shelter from gales. It is mentioned that clusters of dates were obtained for the first time from trees introduced some years ago.

IN the course of a lecture reported in the *West Australian* (September 21) upon the adaptation of plants to their environment, Dr. A. Morrison refers to some of the modifications displayed by West Australian xerophytes. *Calythrix flavescens* and *Nuytsia floribunda* are mentioned as examples of extensive root development, where, however, the main roots run horizontally, while the smaller roots dip downwards. In the dry north-west, where trees are scarce, the few growing there are protected either by a thick cork or a smooth, white bark. *Eragrostis eriopoda*, a grass, is remarkable for the excessive hairy covering on the leaf sheaths, and *Poa nodosa* is characterised by the formation of bulbous swellings at the base of the stem.

MESSRS. F. E. BECKER AND CO. have issued a series of lantern-slides, prepared from botanical photomicrographs, that will interest teaching botanists who make use of the lantern for lecture purposes. Among the first series of fifty slides are sections of stems, roots, and leaves of phanerogams, mostly illustrating regular structure, but a few specimens of irregular structure, as exemplified by Calycanthus, Strychnos, &c., are included. The sections of fossil plants from the Oldham Coal-measures are likely to meet with the largest demand. The slides of *Zygopteris petiole* and Heterangium stem provide very good representations, being in some respects superior to the other specimens that have been examined.

THE reports of the sugar-cane experiments in the Leeward Islands for the year 1906–7 are full of interest, especially to those who have followed the course of the experiments that have extended over several years. Turning to the trial of different varieties, it is clear that considerable advantage will be derived from the introduction of new seedlings. So far, the introduction of new seedlings into plantations has proceeded more rapidly in St. Kitts, owing to certain circumstances detailed in the report. Another feature that has become more marked as the series of experiments has lengthened lies in the suitability of different canes for Antigua and St. Kitts. Thus Sealy Seedling provides the best record for the heavier soils of Antigua, while B. 208 heads the list for St. Kitts. The difference is only partially due to the soil, as the climatic conditions in St. Kitts are also more favourable to B. 208, that matures early, but is susceptible to drought. The varying yield of cane per acre, the quality of the juice, immunity to disease and other characteristics furnish data for discrimination of the varieties.

PLANKTON workers in general will welcome an addition to the somewhat sparse literature dealing with that interesting and difficult group, the Peridiniales, in a report on the Peridiniales of Danish waters, by O. Paulsen, issued from Copenhagen in the *Meddelelser fra Kommissionen for Havundersøgelser* (plankton series). The report is in English, and deals in a masterly way with identification keys to the various sections of the group. The figures and descriptions given of the various genera and species are apt, and likely to be of great use to observers who make identifications from preserved specimens. The bibliography appended is extensive and up to date. The section on the genus Ceratium is worthy of commendation on account of its careful treatment of this very variable section of the Peridiniales. The descriptions and figures of species suggest the great need of cultural treatment of a genus, the growth forms of which tend so strongly to break down specific limits.

STUDENTS of the occult will welcome the elaborate paper by Dr. W. L. Hildburgh in the current issue of the Journal of the Royal Anthropological Institute on Sinhalese magic. He illustrates with copious detail the equipment of the magician, devil-dancer, and astrologist, describes their methods, and provides an ample supply of curious charms, amulets, and horoscopes. He does not enter upon the question of the origin of this system of magic. Probably, as is the case with its religion, Ceylon is indebted for most of its magical lore to the neighbouring peninsula of India.

IN the October number of *Man* Father W. Schmidt throws new light on the disputed question of totemism in Fiji. He points out that there is a fundamental distinction between principal and secondary totems, the former being always double, an animal or a tree, both of which are protected by a rigid tabu; the latter consisting of various products used for food, as the yam, taro, or banana, which may be eaten, but only under specially defined conditions. He also discusses the relationship of totemism in Fiji to that of certain Australian tribes, like the Arunta. In both these regions we find a great number of plant totems; totemism is closely connected with magic, especially with rites intended to produce abundant crops; in both countries it is associated with conception and childbirth; and in both we find localisation of totems. It is worth noting, also, that while in North Australia the tabu is confined to the eating, in South Australia it extends to the killing of the totem. In this respect the system in Fiji resembles that of the northern Australian tribes.

IN the current issue of the Journal of the Royal Anthropological Institute Dr. C. S. Myers sums up his conclusions on the investigation of the races of Egypt. The current view is that from time immemorial there have always been at least two races in Egypt, the one Caucasian (Mediterranean) and the other Negroid, and that to this day both races are present throughout the country, though prevalent in different degrees in different regions. In opposition to this, Dr. Myers holds that every province contains a homogeneous population, notwithstanding that the mean measurements vary in degree of "negroidness" according to province, and that there is no anthropometric evidence of duality of race. Hence he concludes that the Egyptians were always a homogeneous people, who varied now towards Caucasian, now towards negroid characteristics, according to their environment, "showing such close anthropometric affinity to Libyan, Arabian, and like neighbouring peoples, showing such variability and possibly such power of absorption, that from the anthropometric standpoint no evidence is obtainable that the modern Egyptians have been appreciably affected by other than sporadic Sudanese admixture." In support of these novel and valuable conclusions he provides a copious statistical apparatus.

A NOTE by Maud DeWitt Pearl and Raymond Pearl, of the Biological Laboratory of the Maine Experiment Station, on the relation of race crossing to the sex-ratio appeared in the September issue of the *Biological Bulletin*. Some breeders have held that hybrids exhibit an excessive proportion of males, and the authors have examined the birth statistics of Buenos Aires with the view of testing this belief. It appears that during the ten years 1896–1905, crossed marriages, in which the father returned his nationality as Italian or Spanish and the mother gave her nationality as Argentine, did give a slightly larger proportion of male births than pure matings in which both parents were Argentine, Italian, or Spanish respectively. The differences are not great, the numbers of male births per 1000 female births ranging from 100·8 for the marriages between Italians, 103·3 for those between Argentines, and 105·6 for those between Spaniards, to 105·7 and 106·7 for the crossed matings; on the number of births used the differences exceed, however, twice the probable error in every case except one. As the authors very truly state, vital statistics notoriously abound in pitfalls, but they conclude that preponderance of males observed appears not to be capable of explanation as the result of environmental or demographic influences.

IN the November number of the *Popular Science Monthly* (New York), Prof. A. E. Kenelly returns to the subject of the relation between record times and distances for different races, using as fresh illustrations the records of the Olympic Games held in London last July. In his original memoir, of which a notice appeared in NATURE for March 14, 1907 (vol. lxxv., p. 463), Prof. Kenelly showed that a linear relation subsisted between the logarithm of the record time for a race over a course of given length and the logarithm of that length. The Olympic records give points on the diagram lying close to, but above, the line determined by earlier records, the times being in every case relatively high. The divergence is most conspicuous in the case of the Marathon race, but this is not unnatural, as the conditions were scarcely similar to those of a race run over an artificial and almost strictly level course. Prof. Kenelly argues that records would be most easily beaten by the racer attempting to maintain until near the finish a uniform speed, equal to the average speed corresponding to the existing record, and suggests a mechanical method of pace-making for attaining this end.

THE English edition of the "Report of the International Meteorological Conference at Innsbruck, September, 1905," has been published recently by the Meteorological Committee. The work extends altogether to 156 pages, and has been excellently translated from the original German edition by Mr. R. G. K. Lempfert. The conference was attended by fifty-six gentlemen (including a few guests), several of whom represented organisations outside Europe. Some forty items for discussion were included in the provisional programme; some of these were referred to special commissions, while a few were ruled out as being of a purely theoretical character. An account of the opening and second and third meetings appeared in NATURE of September 21 and October 5, 1905 (vol. lxxii., pp. 510, 562). Among the matters subsequently dealt with we may mention a proposal by M. Durand-Gréville for the special study of squalls (hail, thunderstorms, &c.); a permanent commission was appointed to organise the observations. Thanks were accorded to MM. Hellmann and Hildebrandsson for the preparation of the International Meteorological Codex, a systematic collection of the resolutions passed at various meetings since 1871. The comparison of standard barometers, which had engaged the attention of previous conferences, was advocated, both for European and other stations. The magnetic commission also advocated a comparison of instruments and prompt exchange of records for disturbed days. Sir Norman Lockyer read the reports of the solar commission at Cambridge (1904) and Innsbruck (1905); observations are required, *inter alia*, at a number of island stations (specified) for all oceans. All the resolutions of the cloud commission, containing desired improvements in definitions, &c., were adopted by the conference without discussion.

A TWELFTH edition of Mr. Andrew Jamieson's "Elementary Manual of Steam and the Steam Engine" has been published by Messrs. Charles Griffin and Co., Ltd.

MR. C. BAKER, 244 High Holborn, has just issued a revised edition of his catalogue of microscopes and accessory apparatus. The catalogue includes particulars of a number of new instruments of interest to workers in microscopy, whether they be students, teachers, naturalists, or men concerned with studies in medicine or public health. The list of lantern-slides also includes many sets of interest.

THE fourth edition of Behrens's "Tabellen zum Gebrauch bei mikroskopischen Arbeiten" (Leipzig: S. Hirzel, price 8 marks) has been received. It contains tables of weights and measures, specific gravities, solubilities, and formulæ of fixing and hardening agents, stains, microchemical reactions, &c., and should prove of the greatest service in biological, bacteriological, and pathological laboratories.

A SECOND edition of "British Mosses," by Sir Edward Fry, G.C.B., F.R.S., has been published by Messrs. Witherby and Co. With one exception, the illustrations in the new edition have been re-drawn; the short treatment of the liverworts, which formed part of the earlier issue, has been omitted, since the author hopes shortly to deal with this group in a separate volume. The price of the book is 1*s*. 6*d*. net.

MESSRS. W. HEFFER AND SONS, Cambridge, have published a second edition of Mr. Sydney W. Cole's "Exercises in Practical Physiological Chemistry." The first edition of the book was reviewed in NATURE of March 2, 1905 (vol. lxxi., p. 412). It is sufficient to point out that the chief changes are the adoption of the new nomenclature for the proteins as recommended by the Physiological Society, a new set of exercises on the globulins of blood serum, and new methods for the quantitative estimation of sugar.

THE Iron and Steel Institute has published separately an excerpt from its Journal (No. 3 for 1908) dealing with the visits and excursions at the Middlesbrough meeting this year. The report, which is edited by Mr. L. P. Sidney, the assistant secretary of the institute, provides a brief *résumé* of the proceedings at the Middlesbrough meeting, the speeches at the various functions, accounts of visits to places of interest in the neighbourhood, and descriptions of the various steel and iron works visited by parties during the Middlesbrough meeting. The booklet will serve as an interesting memento of a successful meeting.

THREE books of especial interest to those connected with the tropics are shortly to be published by Messrs. J. and A. Churchill. They are:—"Report on the Prevention of Malaria in Mauritius," by Prof. Ronald Ross, C.B., F.R.S.; a new volume of "Studies from the Institute of Medical Research," issued by the authority of the Government of the Federated Malay States; and "Lessons on Elementary Hygiene for Especial Use in Tropical Climates," by Dr. W. T. Prout, C.M.G. The eighteenth edition of Squire's "Companion to the British Pharmacopœia" is also announced by the same firm.